Ratepayer Biomass Nexus

Residential Utility Consumer Office

Our Purpose:

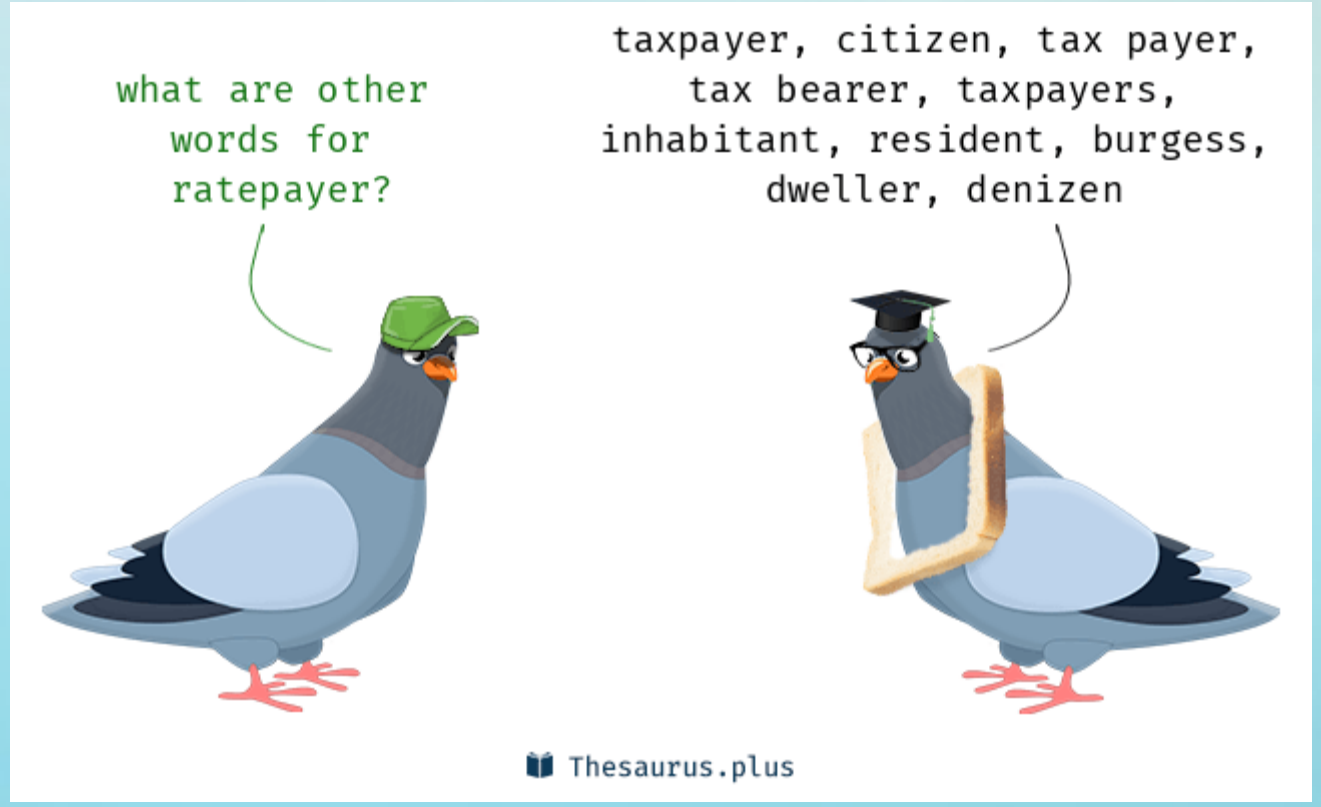
The Residential Utility Consumer Office ("RUCO") was established to represent the interests of residential utility ratepayers in rate-related proceedings involving public service corporations before the Arizona Corporation Commission.

Issue: Unhealthy Forests Increase Harm Caused by Wildfires

- 59,854 more fires in 1985-89 than in 2013-17
- 17,803,556 more acres burned in 2013-17 than in 1985-89
- 41 acres is the average fire size in 1985-89
- 108 acres is the average fire size in 2013-17

Year	# of Fires	Acres Burned
1985-89	361,497	14,899,205
2013-17	301,643	32,702,761

Ratepayer = Taxpayer



The True Cost of Wildfire

- Direct Costs
- Rehabilitation Costs
- Indirect Costs
- Additional Costs

Direct Costs

- Most easily measured because they have immediate and direct impacts.
- Includes federal, state, and local suppression costs
- Other direct costs include private property losses (insured and uninsured), damage to utility lines, damage to recreation facilities, loss of timber resources, and aid to evacuated residents.

Rehabilitation Costs

- Short-term Rehabilitation Costs
  - These costs are sometimes considered direct costs
  - These costs are shouldered by federal, state, and local agencies
- Long-term Rehabilitation Costs
  - These costs are harder to measure, and may not be clearly connected to the wildfire event
  - Watershed damage
  - Post-fire flooding events
  - Subsequent impacts may include an increase in invasive species and erosion.

Indirect Costs

- Indirect wildfire costs include;
  - lost tax revenues in a number of categories such as sales and county taxes,
  - business revenue,
  - and property losses that accumulate over the longer term.

Additional Costs

- These costs include;
  - loss of civilian life,
  - ongoing health problems for the young, old, and those with weak respiratory or immune systems,
  - mental health needs also fall into this category but are rarely quantified.
- Additional harder to quantify costs include;
  - the extensive loss of ecosystem services,
  - aesthetic and scenic beauty,
  - wildlife existence value,
  - and others—can be included here.

Rodeo-Chedeski Fire

- Burned 462,614 acres
- Burned In Eastern Arizona

Fire Year	Other Direct Costs	Rehabilitation Costs	Indirect Costs	Additional Costs	Total Costs
2002	$169,500,000	139,000,000	$403,000	N/A	**$308,403,000**

Schultz Fire

- Burned 15,000 acres
- Burned near Flagstaff
- Significant flooding followed the fire

Fire Year	Other Direct Costs	Rehabilitation Costs	Indirect Costs	Additional Costs	Total Costs
2010	$63,000,000	13,000,000	$64,000,00	$6,000,000	**$140,000,000**

Wallow Fire

- Burned 538,049 acres – largest fire in Arizona history
- Burned In Eastern Arizona and into Western New Mexico
- Only the Suppression costs and Short-term Rehabilitation costs are included

Fire Year	Other Direct Costs	Rehabilitation Costs	Indirect Costs	Additional Costs	Total Costs
2011	$79,000,000	30,000,000	$	$	**$109,000,000**

Yarnell Hill Fire

- 2013
- Burned 8,400 acres
- Killed 19 Firefighters

Highline Fire

- 2017
- 7,198 acres
- 10 family members celebrating a birthday killed by flash flooding originating in area of the fire 8 miles upstream

Social Cost of Carbon

- Federal Government uses $40 per ton for social cost of carbon pollution

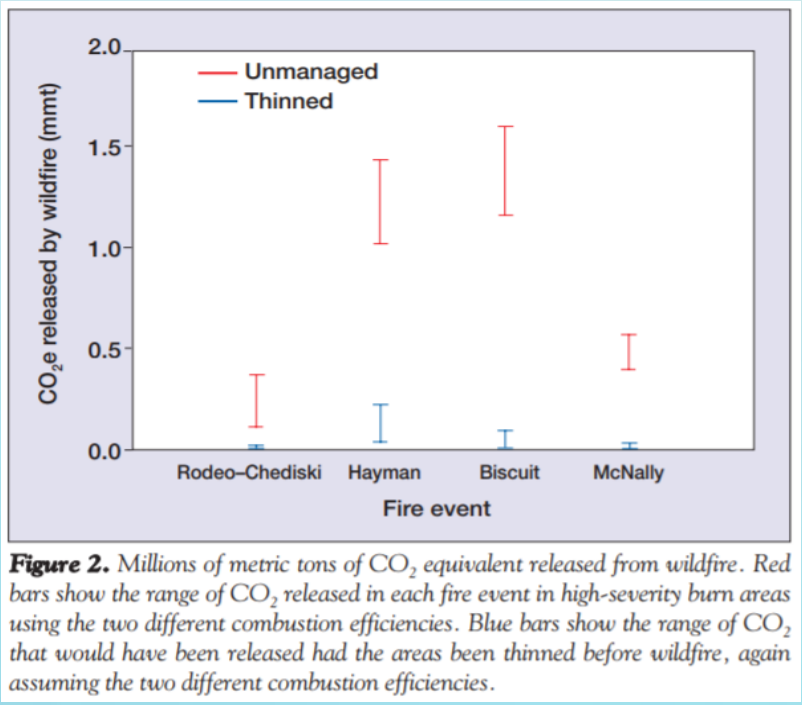


Figure 2. *Millions of metric tons of CO_2 equivalent released from wildfire. Red bars show the range of CO_2 released in each fire event in high-severity burn areas using the two different combustion efficiencies. Blue bars show the range of CO_2 that would have been released had the areas been thinned before wildfire, again assuming the two different combustion efficiencies.*

- Rodeo-Chedeski Fire range of carbon released
  - 150,000 metric tons of carbon released = $6.6 million dollars
  - 400,000 metric tons of carbon released = $17.6 million dollars
- Estimation of carbon reduction if the forest had been properly managed
  - 50,000 metric tons of carbon released = $2.2 million dollars

http://openknowledge.nau.edu/673/7/Hurteau_MD_etal_2008_Carbon_protection_fire_risk_reduction_carbon_offsets%281%29.pdf

Fire Suppression at Federal Level

U.S. Secretary of Agriculture Sonny Perdue recently stated that wildland fire suppression costs for the fiscal year have exceeded $2 billion, making 2017 the most expensive year on record.

Suppression Costs

Federal Firefighting Costs (Suppression Only)					
Year	Fires	Acres	Forest Service	DOI Agencies	Total
1985	82,591	2,896,147	$161,505,000	$78,438,000	$239,943,000
1986	85,907	2,719,162	$111,625,000	$91,153,000	$202,778,000
1987	71,300	2,447,296	$253,657,000	$81,452,000	$335,109,000
1988	72,750	5,009,290	$429,609,000	$149,317,000	$578,926,000
1989	48,949	1,827,310	$331,672,000	$168,115,000	$499,787,000
1990	66,481	4,621,621	$253,700,000	$144,252,000	$397,952,000
1991	75,754	2,953,578	$132,300,000	$73,820,000	$206,120,000
1992	87,394	2,069,929	$290,300,000	$87,166,000	$377,466,000
1993	58,810	1,797,574	$184,000,000	$56,436,000	$240,436,000
1994	79,107	4,073,579	$757,200,000	$161,135,000	$918,335,000
1995	82,234	1,840,546	$367,000,000	$110,126,000	$477,126,000
1996	96,363	6,065,998	$547,500,000	$153,683,000	$701,183,000
1997	66,196	2,856,959	$179,100,000	$105,048,000	$284,148,000
1998	81,043	1,329,704	$306,800,000	$109,904,000	$416,704,000
1999	92,487	5,626,093	$361,100,000	$154,416,000	$515,516,000
2000	92,250	7,383,493	$1,076,000,000	$334,802,000	$1,410,802,000
2001	84,079	3,570,911	$683,122,000	$269,574,000	$952,696,000
2002	73,457	7,184,712	$1,279,000,000	$395,040,000	$1,674,040,000
2003	63,629	3,960,842	$1,023,500,000	$303,638,000	$1,327,138,000
2004	65,461	8,097,880	$726,000,000	$281,244,000	$1,007,244,000
2005	66,753	8,689,389	$524,900,000	$294,054,000	$818,954,000
2006	96,385	9,873,745	$1,280,419,000	$424,058,000	$1,704,477,000
2007	85,705	9,328,045	$1,149,654,000	$470,491,000	$1,620,145,000
2008	78,979	5,292,468	$1,193,073,000	$392,783,000	$1,585,856,000
2009	78,792	5,921,786	$702,111,000	$218,418,000	$920,529,000
2010	71,971	3,422,724	$578,285,000	$231,214,000	$809,499,000
2011	74,126	8,711,367	$1,055,736,000	$318,789,000	$1,374,525,000
2012	67,774	9,326,238	$1,436,614,000	$465,832,000	$1,902,446,000
2013	47,579	4,319,546	$1,341,735,000	$399,199,000	$1,740,934,000
2014	63,312	3,595,613	$1,195,955,000	$326,194,000	$1,522,149,000
2015	68,151	10,125,149	$1,713,000,000	$417,543,000	$2,130,543,000
2016	67,743	5,509,995	$1,603,806,000	$371,739,000	$1,975,545,000

Fire Suppression at Federal Level

"Forest Service spending on fire suppression in recent years has gone from 15 percent of the budget to 55 percent – or maybe even more – **which means we have to keep borrowing from funds that are intended for forest management**"

"We end up having to hoard all of the money that is intended for fire prevention, because we're afraid we're going to need it to actually fight fires. **It means we can't do the prescribed burning, harvesting, or insect control to prevent leaving a fuel load in the forest for future fires to feed on.**"

Sonny Perdue – Secretary of Agriculture

Federal Government's Forest Management Reality

RUCO's Support for Exploring Biomass Energy

- There is the potential to protect our forests, watersheds, environment, wildlife habitat, recreational opportunities, private property, and in some cases livelihoods.
- The Federal government's model for creating healthy forests is broken
- Our ratepayers are paying one way or another

APS's Biomass Proposal

- Scope expanded to include all Arizona residents
- Inputs used resulted in higher costs
- Applying to all Arizona residents results in much lower impact
- More work is left to be done